CLAIMS

1. A method of improving receiver performance by avoiding bad pilots, the method comprising:

using a pilot mask in the receiver,

wherein the pilot mask includes a set of flags, the set of flags associated with certain sub-channels,

wherein each flag in the set of flags determines whether its associated sub-channel is usable for pilot tracking.

2. The method of Claim 1, wherein if a spur will coincide with a sub-channel, then the pilot mask will not allow that sub-channel to be used for pilot tracking.

3. The method of Claim 1, wherein if a spur affects a sub-channel, then the pilot mask will not allow that sub-channel to be used for pilot tracking.

4. The method of Claim 1, wherein the set of flags includes 52 flags associated with 52 sub-channels.

5. The method of Claim 1, wherein the pilot mask is usable for any data rate.

6. A pilot mask for improving receiver performance by avoiding bad pilots, the pilot mask comprising:

a set of flags, the set of flags associated with certain sub-channels, wherein each flag in the set of flags determines whether its associated sub-channel is usable for pilot tracking.

7. A method of providing an accurate channel estimate to a decoder, the method comprising:

determining whether each sub-channel is one of a good sub-

channel and a bad sub-channel;

converting any good sub-channel including a spur to a bad sub-channel; and

providing information regarding good and bad sub-channels, including converted sub-channels, to the decoder.

8.   A method of improving signal decoding in a receiver, the method comprising:

determining whether each sub-channel is one of a good sub-channel and a bad sub-channel;

converting any good sub-channel including a spur to a bad sub-channel;

weighting bits of a signal in a good channel more than bits a bad sub-channel; and

providing the weighted information to a decoder.

9.   The method of Claim 8, wherein a Viterbi mask implements the weighting and the decoder is a Viterbi decoder.

10.   The method of Claim 8, wherein weighting includes adjusting based on data rate.

11.   The method of Claim 10, wherein bits affected by a spur at a higher data rate have a different weighting than bits affected by a spur at a lower data rate.

12.   A decoding circuit in a receiver, the decoding circuit comprising:

a Viterbi decoder; and

a Viterbi mask in operative relation to the Viterbi decoder, the Viterbi mask providing a weighted channel estimate for each sub-channel based on spur information.

13. The decoding circuit of Claim 12, wherein the Viterbi mask provides the weighted channel estimate further based on at data rate information.

14. A filter system for canceling a spur from a signal, the filter system comprising:

a first mixer coupled to receive the signal;

a low-pass filter coupled to an output of the first mixer;

a second mixer coupled to an output of the low-pass filter; and

an adder coupled to receive the signal and subtract an output of the second mixer.

15. The filter system of Claim 14, wherein first mixer performs a rotation of the signal that generates a spur estimate at DC, thereby allowing the low-pass filter to estimate a phase and an amplitude of the spur.

16. The filter system of claim 14, wherein the low-pass filter is a growing box filter.

17. The filter system of Claim 16, wherein the growing box filter includes:

a first accumulator for providing a cumulative sum of a sample; and

a second accumulator for providing a total sum of all samples to a current symbol.

18. A method for canceling a spur from a signal, the method comprising:

rotating the signal to generate a first rotated signal;

performing a filtering computation based on the first rotated signal to generate a filtered signal;

rotating the filtered signal to generate a second rotated signal; and

subtracting the second rotated signal from the signal.

19.   The method of Claim 18, wherein performing the filtering computation includes:

setting a sample set size;

computing a cumulative sum for the sample set over time;

when the sample set size is reached, then adding the cumulative sum to a total sum and resetting the cumulative size to zero;

computing an estimated spur value by dividing the total sum by a total number of samples, wherein the estimated spur value is provided as the filtered signal; and

periodically increasing the sample set size over time.

20.   The method of Claim 19, wherein if the cumulative sum is denoted by cs[n] and the total sum is denoted by ts[n], then adding the cumulative sum to the total sum and resetting the cumulative size to zero occurs when n is a power of 2.

21.   A method of improving a sub-channel estimate for a received signal, the method comprising:

determining sub-channel estimates for a plurality of sub-channels of the received signal; and

if a first sub-channel includes a spur, then ignoring the determined sub-channel estimate of the first sub-channel, computing an interpolated sub-channel estimate based on sub-channels adjacent the first sub-channel, and providing the interpolated sub-channel estimate as the sub-channel estimate

for the first sub-channel.

22.   A method for canceling a spur from a signal, the
method comprising:

rotating the signal to generate a first rotated signal;

performing a filtering computation based on the first
rotated signal to generate a filtered signal;

rotating the filtered signal to generate a second rotated
signal;

subtracting the second rotated signal from the signal to
generate a modified signal; and

after subtracting, computing self-correlation of the
modified signal.

23.   A method for canceling a spur from self-correlation of
a signal, the method comprising:

rotating the signal to generate a first rotated signal;

performing a filtering computation based on the first
rotated signal to generate a filtered signal;

rotating the filtered signal to generate a second rotated
signal, which represents a spur effect;

computing self-correlation of the signal to generate a
modified signal; and

subtracting the spur effect from the modified signal.

24.   A filter system for canceling a spur from a signal,
the filter system comprising:

a first mixer coupled to receive the signal;

a low-pass filter coupled to an output of the first mixer;

a self-correlation block coupled to receive the signal;

a second mixer coupled to an output of the low-pass filter;
and

spur removal means coupled to receive the signal, an output
of the second mixer, and an output of the self-correlation
block.